
Defining the origins of Ras/p53-mediated squamous cell carcinoma.

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Public Summary:

The precise identity of cancer cells of origin and the molecular events of tumor initiation in epidermal squamous cell carcinoma (SCC) are unknown. Here we show that malignancy potential is related to the developmental capacity of the initiating cancer cell in a genetically defined, intact, and inducible in vivo model. Specifically, these data demonstrate that SCCs can originate from inside the hair follicle stem cell (SC) niche or from immediate progenitors, whereas more developmentally restricted progeny, the transit amplifying (TA) cells, are unable to generate even benign tumors in the same genetic context. Using a temporal model of tumorigenesis in situ, we highlight the phenotypes of cancer progression from the hair follicle SC niche, including hyperplasia, epithelial to mesenchymal transition, and SCC formation. Furthermore, we provide insights into the inability of hair follicle TA cells to respond to tumorigenic stimuli.

Scientific Abstract:

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